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August 7, 2001

Ms. Magalie Salas, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

**Re: ET Docket No. 98-153 -- Revision of Part 15 of the Commission's Rules Regarding
Ultra-Wideband Transmission Systems
*Ex Parte Communication***

Dear Ms. Salas:

Pursuant to Section 1.1206(a)(2) of the Commission's Rules, on behalf of XtremeSpectrum, Inc., I am filing this letter electronically to report an oral ex parte communication in the above-referenced proceeding.

Yesterday, Martin Rofheart of XtremeSpectrum, Inc., Michele C. Farquhar, Esq., of Hogan & Hartson, L.L.P., and I met with Commission Martin and Samuel L. Feder of his staff and, separately, with Adam Krinsky of Commissioner Tristani's staff.

Mr. Rofheart summarized his company's views as expressed in prior filings in the proceeding. A copy of his presentation outline is attached.

If there are any questions about this filing, please call me at the number above.

Respectfully submitted,

Mitchell Lazarus
Counsel for XtremeSpectrum, Inc.

cc: Meeting participants



XtremeSpectrum Inc.



XtremeSpectrum Inc.

*System Semiconductor Solutions for
Embedded Wireless Multimedia Appliances*

Company Overview

A horizontal bar with a rainbow gradient, transitioning from red on the left to blue on the right.

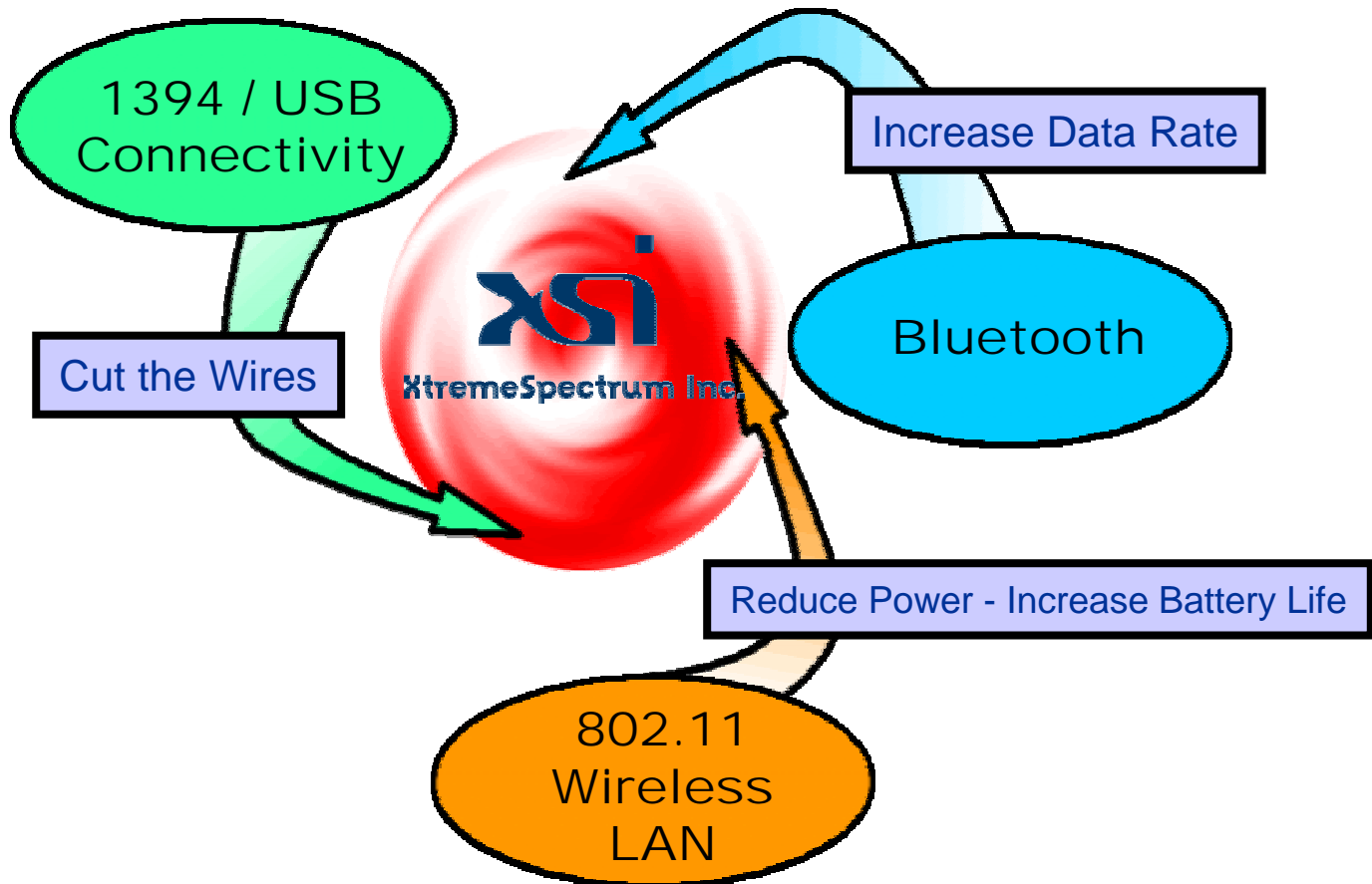
- **Founded Q4 '98 by recognized experts in UWB technology and radar applications.**
- **Management team on-board, with in-depth technology and business experience in communication IC industry (design, manufacture and marketing).**
- **Partners and customers include industry leaders in consumer electronics, computing and networking.**
- **First generation product development nearing completion.**
- **Headquartered in Vienna, VA with Silicon Valley office in Mountain View, CA.**
 - **Product launch tied to regulatory approval.**

Management Team

- **Martin Rofheart, Ph.D., Co-Founder and CEO**
 - *15 years technology industry experience including SMR Inc. (President) , Raytheon, Westinghouse*
- **John McCorkle, Co-Founder and CTO**
 - *20 years industry experience in DoD engineering, inventor and patent holder for ultra wideband SAR*
- **Raj Sengottaiyan, VP of Engineering**
 - *Over 20 years semiconductor industry experience including Fairchild, Impala Linear, and SUN. Strong knowledge in high performance process technologies*
- **Chris Fisher, VP of Sales and Marketing**
 - *12 years experience in marketing, sales, and product management for Radiata, Conexant, RF Micro Devices, and AMD*
- **Andrew Schneck, VP of Finance and Strategic Planning**
 - *15+ years experience in strategic consulting, new ventures, and business management including Bain & Company, and Monitor*

*XtremeSpectrum Simultaneously Delivers
High Data Rate, Low Power Consumption, and
Low Cost*

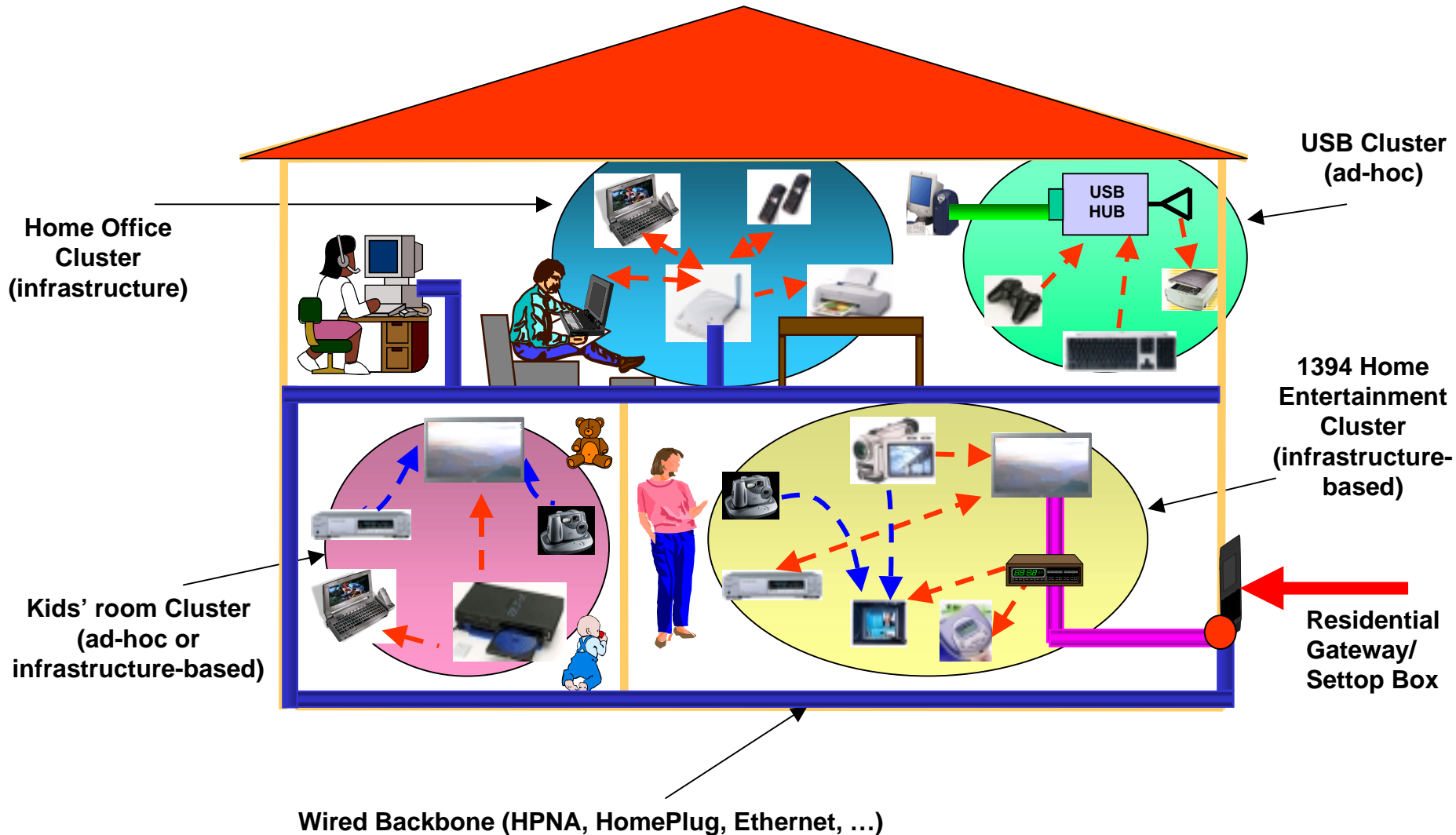
Reducing the Performance Differences between the Wireless and Wired Worlds for Consumer Media-Intensive Devices



Applications: Reducing the Rat's Nest of Wires



Our Vision: Wireless Networked Home

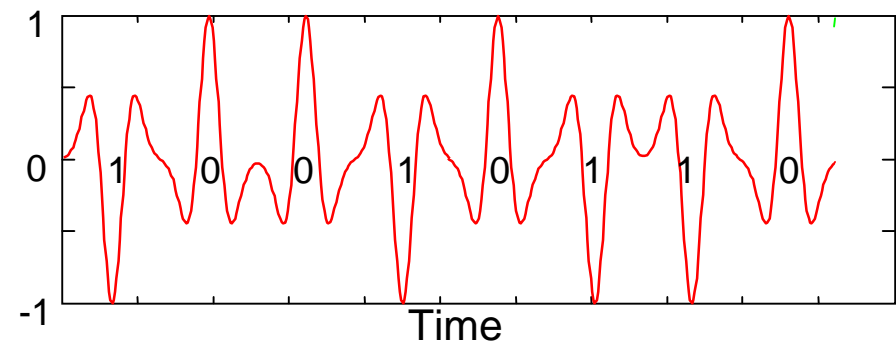
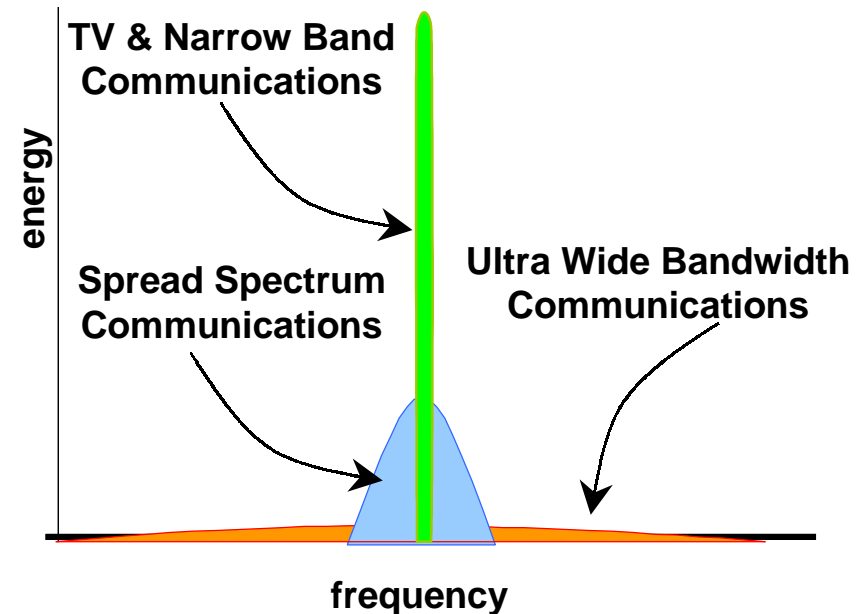


UWB Versus Conventional Technologies

- **XSI UWB technology can *simultaneously* deliver:**
 - High data rate, low power consumption and low cost
- **Difference from 2.4 GHz and 5 GHz radios**
 - More robust performance for indoor wireless environment
 - Higher data rate (approximately 2x to 10x faster than W-LAN technologies, and 100x Bluetooth)
 - Power consumption that is amenable to battery powered handheld products (cellphone, PDA, digital camera)
 - High quality of service (QoS): multiple video and audio streams with wired quality
 - Signal processing functionality which is less complex, yielding lower cost to implement
- **UWB does not require dedicated spectrum**

What is Ultra-Wideband?

- **Ultra-Wideband (UWB)** spreads a very low power signal across a wide swath of spectrum, diluting its energy to well below the detection threshold of conventional receivers.
- **UWB emits coded, picosecond-length pulses, spread over frequency and time, across existing FCC frequency assignments.**

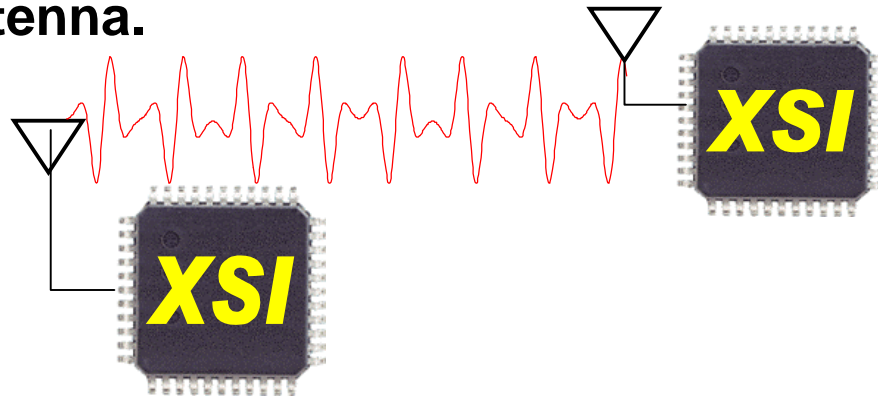


The XSI Ultra-Wideband Wireless Chipset



XtremeSpectrum Inc.

Everyday PC/laptop chipsets emit random, **unintentional** Ultra-Wideband signals - the traces on the PC board behave like an antenna.



- XSI radio chipsets transmit and receive intentional UWB signals, at the same low voltage as conventional CMOS chips, through an innovative antenna etched on the PC board.
- Moore's Law Radio – Match to IC roadmap
- At sensitive frequencies, XSI chipsets will emit at levels far below the maximum for conventional PCs.

The Record is Complete



XtremeSpectrum Inc.

- Interested parties have filed nearly 700 comments and other submissions with the FCC.
- Seven separate reports and studies have been submitted for public comment.
- XSI has participated actively in this proceeding and has provided constructive proposals for increasing protections for GPS and other spectrum users.

Interference Is Not an Issue with XSI's Proposals

- **The GPS industry and other spectrum users have expressed concern about UWB interference. XSI listened to their concerns, looked at the data and asked the FCC to place additional, more stringent safeguards on UWB operations:**
 - a steep emission mask to limit emitted power in the more sensitive bands;
 - a test to reduce spectral lines in the GPS band; and
 - indoor-only operation.
- **The fear that the aggregated emissions from hundreds of nearby UWB devices will cause interference is unfounded.**
 - Because UWB devices operate at extremely low power levels and propagate only over short distances, there is virtually no aggregation effect.
- **UWB has no perceptible effect on the noise floor.**

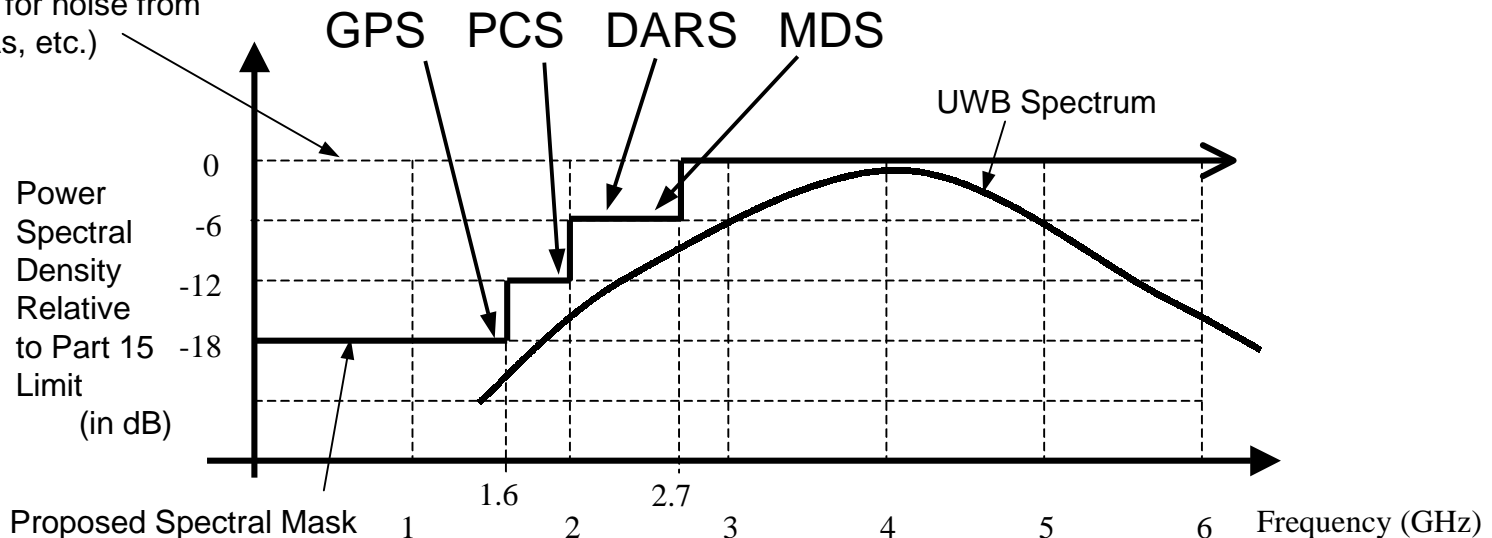
Proposed Spectral Mask Will Limit UWB Emissions in Sensitive Bands



XtremeSpectrum Inc.

Existing Part 15 Limit

(e.g., limit for noise from PCs, PDAs, etc.)



- Mask limits UWB emissions to levels below those in NPRM. In GPS band, power is limited to one-billionth of 1 watt, representing 1/64th the limit for digital devices.
- Mask is consistent with GPSIC requests in other proceedings.

Adopting XSI's Test for Spectral Lines Will Protect GPS

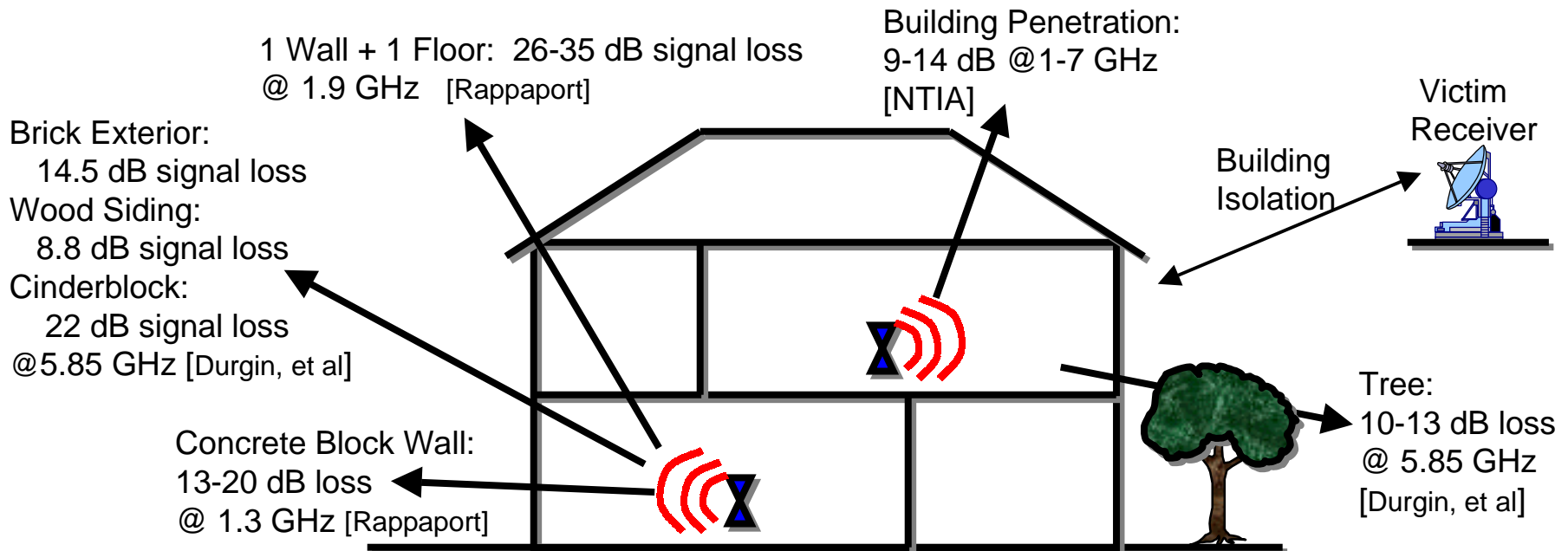
- **XSI accepts and endorses the GPSIC test for spectral lines, as supported by NTIA and RTCA studies.**
- **A device that passes the spectral line test has shown it does not generate spectral lines that could interfere with GPS.**
- **The NTIA and FCC should follow their traditional approach in setting performance criteria and allow industry to decide how best to meet the criteria.**

Proposed Indoor Usage Restriction Adds Significant Protection



XtremeSpectrum Inc.

- **Indoor-only restriction provides protection for other systems.**
 - Multiple studies show that buildings reduce signals emitted to the outdoors by at least 87%, and often much more.
- **Indoor use restriction eliminate the likelihood of interference to GPS and other users.**
- **Even glass exterior buildings reduce signals by 87%.**
- **Indoor GPS-based E911 operations will not be hindered.**



Indoor Restrictions Effective Even for “Glass” Buildings

- **The body of scientific literature shows that using 9 dB for an average building loss factor, as NTIA did, is not an overstatement.**
- **This is true even when considering glass exterior buildings.**
 - Only a fraction of a glass façade building consists of windows. The rest is interior and exterior walls, support columns and spaces between floors that cause severe multipath interference and reduce signal strength.
 - Even window glass alone impedes UWB signals unless the outdoor receiver is close to the glass and lines up with the indoor UWB transmitter at right angles. This scenario is exceedingly unlikely.
 - XSI provided many additional citations in its July 25, 2001 filing.

Indoor E911 Will Not Be Affected



XtremeSpectrum Inc.

- **GPSIC states that indoor E911 Assisted GPS (“A-GPS”) needs an “interference-free” environment where all RF interference is at or below thermal noise.**
 - This is not possible, with or without UWB.
 - In practice, RF from other sources such as electric motors, computers, fluorescent lights, copiers, etc. will completely drown out the UWB signal.
 - Class-B digital devices are allowed to radiate 64 times more power than XSI proposes, yet there have been no complaints of interference with GPS from these common devices.
 - In a real-world RF environment, UWB emissions in the GPS bands will be literally lost in the noise.

Indoor E911 Will Not Be Affected



XtremeSpectrum Inc.

- **UWB emissions at XSI's proposed levels will not hinder indoor E911 Assisted GPS ("A-GPS") even in the absence of other RF sources.**
 - An additional processing gain of 20-30 dB provided by A-GPS techniques, as used in E911-capable handsets, provide ample margin of protection against UWB emissions for indoor A-GPS operation.
 - Using GPSIC-provided data, XSI has demonstrated that successful location determination is possible from an indoor A-GPS unit with four UWB devices operating within 3 meters.

Aggregation Effects are Not a Threat to GPS



XtremeSpectrum Inc.

- **Indoor UWB signals propagate poorly, so signals from devices more than about 10 meters away cannot add significantly.**
- **UWB has no perceptible effect on the noise floor.**
- **Aggregation effects are insignificant.**
 - *Because UWB devices operate at extremely low power levels and propagate only over short distances, there is virtually no aggregation effect. The combined emissions coming from hundreds of UWB devices in a building will impact any given receiver no more than the 2.5 UWB devices operating nearest that receiver.*

Even if all the TVs in a hotel are playing, at most you might barely hear your immediate neighbors', but you don't hear any others -- and you certainly don't hear any of these TVs from anywhere outside the hotel, or from inside the hotel next door.

NTIA GPS studies

Overview

- **74 cases analyzed**
 - Included indoor, outdoor, and multiple emitter scenarios
- **35 were not “noise-like”**
 - Recommended spectral line test ensures the same margins for these as for noise-like emitters
- **39 other cases**
 - A spectral mask that provides 18 dB of additional protection from the current Part 15 Class B limits
 - Restricting use of UWB devices to indoor operations – add 9 dB of building loss.
- **No cases remain after applying proposed rule modifications**

XSI Summary

- **UWB delivers high data rate and low power consumption at low cost to enable wireless media-intensive consumer electronics applications. The public must be given the opportunity to benefit from this technology.**
 - Expeditious FCC action will ensure US leadership in this innovative wireless technology.
- **Technical arguments opposing UWB are not valid and should not delay approval.**
 - **Interference** – XSI's proposed emissions limits, spectral lines test and indoor-only restriction will ensure NO harmful interference to other devices.
 - **Aggregation** – UWB signals do not aggregate significantly and do not raise the noise floor.
- **XSI's proposals are all anticipated in the NPRM and do not require a Further Notice.**
- **After 3 years, 7 studies and nearly 700 submissions in the record, the FCC should move forward promptly to authorize UWB.**